

Application No.: 10/060,690

Case No.: 56311US007

Amendments to the Specification

Support for the following amendments is discussed in the Remarks below.

Please replace the paragraph beginning at page 1 line 27 which starts "In one aspect, the invention relates to a composition that includes..." with the following amended paragraph:

In one aspect, the invention relates to a composition that includes (a) a fluoropolymer having interpolymerized units derived from a nitrogen-containing cure site monomer; (b) a catalyst composition that includes a compound having the general formula:

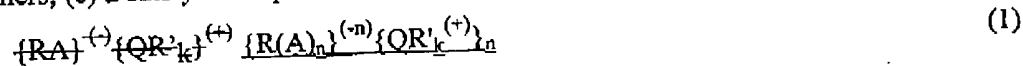


or the precursors thereof added separately or as a mixture;

and optionally (c) an alcohol of the general formula R^2-OH , wherein R^2 is an alkyl group having from 1 to 20 carbon atoms, and wherein R^2 can be fluorinated.

Please replace the paragraph beginning at page 2 line 5 which starts "In another aspect, the invention relates to a composition that includes..." with the following amended paragraph:

In another aspect, the invention relates to a composition that includes (a) at least one fluoropolymer having interpolymerized units derived from a nitrogen-containing cure site monomer; (b) one or more other fluoropolymer(s), which may have nitrogen-containing cure site monomers; (c) a catalyst composition that includes a compound having the general formula:



or in certain cases the precursors thereof added separately or as a mixture; (d) a curative targeted to cure the one or more other fluoropolymer(s); and optionally (e) an alcohol of the general formula R^2-OH , wherein R^2 is an alkyl group having from 1 to 20 carbon atoms, and wherein R^2 can be fluorinated.

Application No.: 10/060,690

Case No.: 56311US007

Please replace the paragraph beginning at page 2 line 25 which starts "Q is phosphorous (P)" with the following amended paragraph:

Q is phosphorous (P), sulfur (S), nitrogen (N), arsenic (As), or antimony (Sb), and k is one greater than the valence of Q.

Please replace the paragraph beginning at page 3 line 11 which starts "In other aspects, the invention provides a method of making a fluoropolymer composition involving..." with the following amended paragraph:

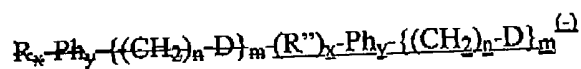
In other aspects, the invention provides a method of making a fluoropolymer composition involving providing a composition as described above, mixing, shaping, curing (*i.e.*, press-curing and optionally post-curing), and optionally heat aging the composition. The invention also provides a method of improving scorch resistance (also called scorch safety) in a curable fluoropolymer comprising the steps of providing a fluoropolymer comprising interpolymerized units derived from a nitrogen-containing cure site monomer and incorporating, into the fluoropolymer, a catalyst composition that includes a compound having the general formula: $\{RA\}^{(-)}\{QR'_k\}^{(+)}\{R(A)_n\}^{(-n)}\{QR'_k\}^{(+)}_n$ or the precursors thereof added separately or as a mixture, wherein R, A, Q, R', and k are as defined above in reference to Formula (1). The invention also provides articles containing the curable or cured compositions such as hoses, gaskets, and O-rings.

Please replace the paragraph beginning at page 9 line 18 which starts "More specifically, the RA anion in the catalyst" with the following amended paragraph:

More specifically, the RA anion in the catalyst of the present invention may be a carboxylate, alkoxide, sulfate, sulfonate, or phenolate. As used herein, "substituted" means substituted by conventional substituents that do not interfere with the desired product, and "Ph" is phenyl. Suitable anions include the non-perfluorinated anions of the general formula:

Application No.: 10/060,690

Case No.: 56311US007



wherein each $[[R_x]] R''$ is the same or different alkenyl or alkyl of 1 to 10 carbon atoms, which may be substituted or unsubstituted, x is 0 to 5, y is 0 or 1, n is 0 to 10, m is 1 to 5, and D is selected from COO, OSO₃, SO₃, and O (when y is 1), provided that the sum of x and m is 6 or less and provided that x and y are not both zero.

Please replace the paragraph beginning at page 13 line 25 which starts "The catalyst composition of the present invention can be prepared by any suitable method..." with the following amended paragraph:

The catalyst composition of the present invention can be prepared by any suitable method. For example, the two components of the active complex used as the catalyst composition in the present invention, $\{RA\}^{(+)}\{QR'_k\}^{(-)}\{R(A)_n\}^{(-n)}\{QR'_k\}^{(+)}$, can be incorporated separately as an acid or a salt, e.g., RAX wherein X is selected from hydrogen or the alkali or alkaline earth metals, of which H, K, Na, and NH₄, are preferred, and QR'_kZ, wherein Z is selected from an anion, which may be organic or inorganic, preferably Cl, Br, OH, OR³, or SO₄. The two components can be added to the inventive elastomer gum separately or as a mixture. In this method, the active complex is formed *in situ* during processing, heating, and curing. To avoid contamination and the inclusion of extractables, which is especially important for clean applications (e.g., semiconductors), the complexes should be prepared before incorporation into the fluoroelastomer composition, and the resulting salts, XZ, should be filtered or washed out before the active complex is incorporated into the elastomer gum. Other suitable methods, which are known in the art, also may be used to prepare the catalyst composition. For example, the two components of the catalyst composition can be dissolved into a suitable solvent (e.g., an alcohol) before precipitating and filtering out the resulting salt, XZ. Salt formation can be avoided by reacting the onium component as the onium-hydroxide or onium-alkoxide with the acid component of the catalyst composition (e.g., reacting Bu₄NOH with RCOOH). The active complexes can be incorporated into the elastomer gum when dissolved in a solvent or as a dried

Application No.: 10/060,690

Case No.: 56311US007

compound. An excess of the QR'_k material (e.g., tetraalkyl phosphonium chloride) or the free acid (e.g., RAH) does not detrimentally affect the properties of the polymer.

Please replace the paragraph beginning at page 14 line 14 which starts "An effective amount of the selected curative compound ($\{RA\}^{(-)}\{QR'_k\}^{(+)}$) is used to crosslink the fluoropolymer..." with the following amended paragraph:

An effective amount of the selected curative compound ($\{RA\}^{(-)}\{QR'_k\}^{(+)}$) $\{R(A)_n\}^{(-n)}\{QR'_k\}^{(+)}_n$ is used to crosslink the fluoropolymer. When the amount of curative is too low, the fluoropolymer may not crosslink sufficiently to develop the desired physical properties and/or may crosslink more slowly than desired. When the amount of curative is too high, the fluoropolymer may crosslink into a material that is less compliant than desired and/or may crosslink too rapidly for the desired process conditions. The selection of a particular composition can affect the amount of curative desired. For example, the type and/or amount of filler selected may retard or accelerate curing relative to a similar, but unfilled, composition, requiring an appropriate adjustment in the amount of curative that is known to those skilled in the art.